

# PATENT SPECIFICATION

DRAWINGS ATTACHED

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## COMPLETE SPECIFICATION

### Improvements in or relating to the Mounting of Loose Riding Rings on Rotary Kilns, Rotary Coolers or Rotary Dryers

We, VICKERS-ARMSTRONGS (ENGINEERS) LIMITED, a British Company, of Vickers House, Broadway, Westminster, London, S.W.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the mounting of loose riding rings on rotary kilns, rotary coolers or rotary dryers.

According to the present invention there is provided in combination a rotary kiln, rotary cooler or rotary dryer having a pair of axially spaced circumferentially extending grooves and a riding ring surrounding the kiln, cooler or dryer, wherein the riding ring has an annular recess at each extreme end of the bore thereof, there being split retaining rings spaced axially along the cylindrical member and entered in said grooves, said retaining rings projecting radially from their associated grooves and partly filling said annular recesses and co-operating one with each of the shoulders formed between each recess and the main part of said bore thereby to locate the riding ring axially of the kiln, cooler or dryer.

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings in which:—

Figure 1 is an elevational view of a rotatable drum having a riding ring thereon, and

Figure 2 is a vertical sectional view of part of the drum of Figure 1, the section being taken through the axis of the drum.

Referring now to the drawings, there is shown an annular riding ring 1 which loosely

surrounds a rotatable drum 2 forming part of a rotary kiln, cooler or dryer.

The cylindrical exterior 3 of the drum 2 carries a plurality of rectangular pads 4 which are identical to one another and spaced at equal intervals circumferentially around the exterior 3 of the drum 2. Each pad is located such that its two longer edges 5 and 6 extend parallel to the longitudinal axis of the drum 2 and such that the centres of the pads 4 are all located in a common plane which extends at right angles to the longitudinal axis of the drum 2. Each pad 4 has two grooves 7 and 8 (see Figure 2) in the outer surface 9 thereof, the grooves 7 and 8 both extending at right angles to the drum axis. The grooves 7 and 8 form first and second sets of grooves, the groove 7 in each pad 4 being a member of the first set and the groove 8 of each pad 4 being a member of the second set. The first and second sets of grooves 7 and 8 each lie in a plane perpendicular to the longitudinal axis of the drum 2.

The annular riding ring 1 is of the configuration formed by rotating a basically rectangular area about an axis. The basic form of the rectangle is, however, modified so that the bore 10 of the riding ring 1 has annular recesses at the extreme end portions thereof. Annular shoulders 11 and 12 are formed between the respective recesses in the bore 10 and the main portion of the bore 10 of the riding ring 1. The radial distance from the axis of the riding ring 1 to the inner surface of the main portion of the bore 10 is very slightly greater than the radial distance from the axis of the drum 2 to the outer surfaces 9 of the pads 4. Thus the riding ring 1 can be passed around the drum 2 to encircle the drum 2 and pads 4. The

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distance between the shoulders 11 and 12 is equal to the distance between the innermost edges 13 of the grooves 7 and 8 in each pad 4 and the riding ring 1 is positioned with the shoulders 11 and 12 aligned with the edges 13.

When the riding ring 1 is so positioned retaining rings 14 and 15 are disposed one in each of the sets of grooves 7 and 8, each ring 14 and 15 partly filling the adjacent annular recess of the riding ring 1. Each of the retaining rings 14 and 15 is in halves and these ring halves are sprung into position to bottom in the associated set of grooves 7 and 8. Keep plates 16 and 17 are then secured by screws 18 to the outer circumferential surface of each ring 14 and 15, each keep plate 16 or 17 being entered in the adjacent recess of the ring 1 to be in sliding contact with the cylindrical surface 19 of the recess and the adjacent shoulder 11 or 12.

Those parts of the rings 14 and 15 which project above the outer surfaces 9 of the pads 4 co-operate with the shoulders 11 and 12 and serve to locate the riding ring 1 axially of the drum 2. The keep plates 16 and 17 maintain the rings 14 and 15 in the grooves 7 and 8. Preferably there are three keep plates 16 or 17 on each half of each of the rings 14 and 15. In this arrangement, one keep plate 16 or 17 is adjacent each end of each ring half and a further keep plate 16 or 17 is arranged mid-way between the ends of each ring half.

#### WHAT WE CLAIM IS:—

1. In combination a rotary kiln, rotary cooler or rotary dryer having a pair of axially spaced circumferentially extending grooves which are effectively formed in the rotary kiln, rotary cooler or rotary drier and a

riding ring surrounding the kiln, cooler or dryer, wherein the riding ring has an annular recess at each extreme end of the bore thereof, there being split retaining rings spaced axially along the rotary kiln, cooler or dryer and entered in said grooves, said retaining rings projecting radially from their associated grooves and partly filling said annular recesses and co-operating one with each of the shoulders formed between each recess and the main part of said bore thereby to locate the riding ring axially of the kiln, cooler or dryer.

2. The combination claimed in claim 1, wherein a plurality of pads is circumferentially spaced around the cylindrical outer surface of said cylindrical member, said pads each having grooves therein for receiving said split retaining rings.

3. The combination claimed in claim 1 or 2, wherein each ring is split to form two separate halves, and the halves are sprung into position in said grooves.

4. The combination claimed in claim 1, 2 or 3, wherein keep plates are secured to the outer circumferential surface of each retaining ring, the keep plates being entered in said annular recesses in sliding contact with the cylindrical surface of the associated recess.

5. In combination a rotary kiln, rotary cooler or rotary dryer, and a loose riding ring surrounding the kiln, cooler or dryer, the combination being substantially as hereinbefore described with reference to the accompanying drawings.

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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of the Original on a reduced scale.

FIG. 1.

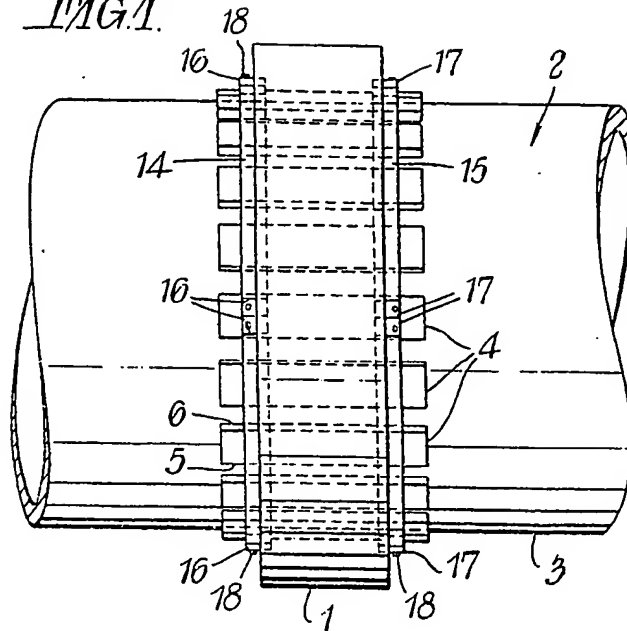


FIG. 2.

